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Transparency and confidence-building measures in outer space activities

Transparency and confidence-building measures in outer space activities

Report of the Secretary-General

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I. Introduction

1. In paragraph 8 of its resolution 70/53 on transparency and confidence-building measures in outer space activities, the General Assembly requested the Secretary-General to submit to the Assembly at its seventy-second session a report on the coordination of transparency and confidence-building measures in outer space activities in the United Nations system, with an annex containing submissions from Member States giving their views on transparency and confidence-building measures in outer space activities.

2. By that same resolution, the General Assembly noted the request by the Committee on the Peaceful Uses of Outer Space for a special report by the Inter-Agency Meeting on Outer Space Activities (UN-Space), as part of the United Nations system, for consideration at its fifty-ninth session, in 2016, on the implementation of the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, as contained in document A/68/189. UN-Space issued its special report in April 2016 (A/AC.105/1116).

3. In its special report, UN-Space addresses the role of United Nations entities in supporting Member States in the implementation of transparency and confidence-building measures in outer space activities and provides an overview of the work of those entities in relation to the main recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, as appropriate and relevant to the objective of that report. Section III below reproduces the substantive text of the special report by UN-Space and incorporates updates received from the contributing entities.

4. On 5 December 2016, a note verbale was sent to all Member States in which their attention was drawn to paragraph 8 of resolution 70/53 and in which their views on transparency and confidence-building measures in outer space activities were sought, also taking into account resolution 71/82, in which the General Assembly, among other things, encouraged the Disarmament Commission to hold informal discussions on the subject contained in working paper A/CN.10/2016/WP.1 during the substantive session of the Commission in 2017, without prejudice to the deliberations on the existing agenda items.

5. Executive summaries of the replies received from nine Governments and one intergovernmental organization are reproduced in sections IV and V below. The replies in extenso received will be posted on the website of the Office for Disarmament Affairs in the original language received, unless an objection is communicated from the Member States or entity.

II. Observations

6. The situation in outer space has changed substantially since the entry into force 50 years ago of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. The international community is increasingly dependent on space-based platforms for economic development, communications, combating climate change and ensuring global peace and security.

7. While civil and commercial demand has driven much of the new activities in outer space in recent decades, the number of military users and assets in outer space has also risen precipitously. Of the more than 1,400 active satellites in orbit, approximately one-quarter of them have some military application. This growing

dependence on space-based platforms and the increasing strategic value of outer space raises the likelihood that a terrestrial conflict could spill over into an already fragile space environment, with potentially devastating consequences.

8. In 2010, the General Assembly sought to address that challenge by establishing a group of governmental experts to conduct a study on transparency and confidence-building measures in outer space activities. The group produced a consensus report in 2013, which presented recommendations on voluntary measures that could build mutual understanding and trust and reduce misperceptions and miscalculations, thereby helping to prevent military confrontation and foster stability. Such voluntary measures can also augment the safety, sustainability and security of space operations.

9. The General Assembly has long recognized the role of transparency and confidence-building measures as a means to prevent an arms race in outer space. The voluntary measures can serve to establish a baseline for further efforts to increase security and safety in outer space activities, including through the formulation of political commitments, principles for responsible behaviour and legally binding instruments. They form an integral component of progressive efforts aimed ultimately at preserving outer space as a realm free of conflict.

10. Since 2013, there have been important steps taken within the United Nations system to promote the implementation of transparency and confidence-building measures in outer space activities. In 2015, the First and Fourth Committees of the General Assembly held their first-ever joint meeting, to address possible challenges to space security and sustainability. The Committee on the Peaceful Uses of Outer Space has sought to operationalize many of the measures recommended by the Group of Governmental Experts through its work on the long-term sustainability of outer space activities.

11. Entities within the United Nations system have established coordination mechanisms, including through UN-Space. While these entities can already facilitate the implementation of a range of transparency and confidence-building measures within their existing mandates, the practical implementation of many other measures would benefit from further consideration and support by Member States in United Nations bodies.

12. The present report highlights both the existing capabilities and gaps regarding the implementation of transparency and confidence-building measures. It is hoped that the report will bring into focus those areas in which further efforts are needed to promote the practical implementation of transparency and confidence-building measures in outer space activities, with the goal of preventing an arms race in outer space.

III. United Nations entities supporting Member States in the implementation of transparency and confidence-building measures in outer space activities

13. The benefits of space science and technology are increasingly being recognized by the international community, in particular for the ways in which they can support the interrelated aims of environmental sustainability, inclusive social and economic development and global peace and security. Entities within the United Nations system make use of space science and technology to help them to carry out their mandates. Space-derived geospatial data, for example, provide strategic information that is key to decision-making and efficient management in peacekeeping operations and crisis management contexts.

14. There is also growing recognition that international cooperation in outer space activities, both between spacefaring nations and between spacefaring and non-spacefaring nations, builds transparency, trust and confidence among States. Efforts to enhance open satellite data collection and dissemination, for example, support the aim of making the benefits of space available to all States on a mutually agreeable and equitable basis. The Global Climate Observing System, the Global Terrestrial Observing System and the Global Ocean Observing System are examples of joint international undertakings that involve United Nations entities and international organizations and employ, encourage and coordinate space systems and data for collaborative observation, modelling and analysis.

15. Coordination mechanisms such as the Committee of Experts on Global Geospatial Information Management, which is an intergovernmental mechanism for the global geospatial community, and the United Nations Geographic Information Working Group, which is an internal technical and operational mechanism within the United Nations, also undertake relevant work in geospatial issues. The Group on Earth Observations, which is not a United Nations entity but which has a secretariat hosted by the World Meteorological Organization (WMO), represents an additional partnership between Governments and organizations that links Earth observation resources around the world. The Committee of Experts has a close strategic partnership with the Group on Earth Observations.

16. Various United Nations entities already support Member States in the implementation of transparency and confidence-building measures in outer space activities within existing mandates. The present report describes this work and identifies ways in which United Nations entities can further assist Member States in implementing recommendations of the Group of Governmental Experts. Ways of coordinating work between entities is also addressed.

A. Information exchange on space

Exchange of information on the principles and goals of a State's outer space policy

17. Information on national space polices and activities has been reported and disseminated through the Committee on the Peaceful Uses of Outer Space since the early 1960s.

18. In its resolution 1721 (XVI) B, the General Assembly requested the Committee on the Peaceful Uses of Outer Space to provide for the exchange of information relating to outer space activities supplied as Governments may supply on a voluntary basis, supplementing but not duplicating existing scientific and technical exchanges.

19. In 1962, the Committee on the Peaceful Uses of Outer Space decided to compile information that might be provided on a voluntary basis relating to national, regional and international programmes of peaceful space research and exploration, and information relating to governmental and non-governmental international bodies active in that field (A/5181, para. 14 (a)).

20. In its resolution 1802 (XVII) on international cooperation in the peaceful uses of outer space, the General Assembly noted with appreciation that a number of Member States had already, on a voluntary basis, provided information on their national space programmes and urged other States and regional and international organizations to do so.

21. Since that time, information on national space policies and activities has continued to be reported on and disseminated through the Committee on the

Peaceful Uses of Outer Space, through general exchanges of views and reports submitted on national activities, as well as under specific items on the agenda of the Committee, including space debris, the long-term sustainability of outer space activities, the use of nuclear power sources in outer space, space weather, near-Earth objects and national legislation relevant to the peaceful exploration and use of outer space. That reporting and information-sharing build transparency and confidence. The Office for Outer Space Affairs provides secretariat services for those mechanisms, formally requests submissions through notes verbales to Member States and produces and disseminates parliamentary documentation on the basis of the replies received. The website of the Office also acts as a repository for information on related topics, such as national space debris mitigation standards,[1] national space legislation[2] and international agreements.[3]

22. The Office for Disarmament Affairs maintains three confidence-building mechanisms for the reporting on information on military capabilities and plans. Those mechanisms include the annual United Nations Report on Military Expenditures,[4] the Register of Conventional Arms and a database containing information on confidence-building measures in the field of conventional arms provided by Member States (see General Assembly resolution 69/64). They provide for transparency in, respectively, military spending, reporting on international transfers of conventional arms and the provision of information on confidence-building measures enacted by Member States. The database covers a range of measures for, among other things, information exchange, observation, verification and military constraint. Member States, in general, do not provide information on their military policies under those mechanisms.

23. To give effect to the measures recommended by the Group of Governmental Experts, Member States are encouraged to consider making use of an existing reporting mechanism for the exchange of information on the security aspects of national space policies, including information on the military aspects of major outer space research and space applications programmes. Member States could also consider requesting that the Office for Disarmament Affairs and the Office for Outer Space Affairs establish a repository for such information received from Member States.

Exchanges of information on major military outer space expenditure and other national security space activities

24. Since 2015, the Office for Disarmament Affairs has asked Member States with military and national security space activities for information on such military space expenditure and on other national security space activities for inclusion in the United Nations Report on Military Expenditures. Member States have also been requested to supplement their report with explanatory remarks regarding submitted data, such as total national security space expenditure as a share of gross domestic product and major changes from previous reports. No Member State has yet provided such information.

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[1] www.unoosa.org/documents/pdf/spacelaw/sd/Space_Debris_Compendium_COPUOS_10_February_2016.pdf.

[2] www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/index.html.

[3] www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/bi-multi-lateral-agreements.html.

[4] The United Nations standardized instrument for reporting military expenditures (previously known as the United Nations System for the Standardized Reporting of Military Expenditures) was introduced pursuant to General Assembly resolution 35/142 B. The Office for Disarmament Affairs includes the request to Member States in the regular note verbale transmitted to all States on the annual submissions to the United Nations Report on Military Expenditures.

25. The General Assembly undertakes progressive efforts to improve the operation of and broaden the participation in the United Nations Report on Military Expenditures. To that end, in its resolution 68/23, the Assembly decided to establish a group of governmental experts to review the operations and further development of the reporting instrument, including the establishment of a process for periodic reviews in order to ensure the continued relevance and operation of the Report. The group began its work in 2016 and will transmit its report to the General Assembly for consideration at its seventy-second session. The Office for Disarmament Affairs briefed the group on the matter of increasing transparency in major military outer space expenditures and encouraged it to consider how reporting on major military outer space expenditures could be integrated into the Report as a means of facilitating the provision of information by Member States. The group could also consider referring the matter to another body, such as the Disarmament Commission.

B. Information exchange and notification procedures relating to outer space activities

Mechanisms for information exchange and notifications under the United Nations treaties on outer space

26. Under the five international treaties and five legal principles governing space activities,[5] the Secretary-General has been delegated a number of responsibilities, which primarily involve the timely dissemination of information received from States. Those responsibilities include:

(a) Maintaining the Register of Objects Launched into Outer Space (Convention on Registration of Objects Launched into Outer Space);

(b) Disseminating information relating to outer space activities, including the discovery of harmful phenomena, provided by States (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies), the recovery of "foreign" astronauts in distress and/or space objects by States within their territory and their return (Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space), lunar exploration and habitation (Agreement Governing the Activities of States on the Moon and Other Celestial Bodies), remote sensing, direct broadcasting (Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting and Principles Relating to Remote Sensing of the Earth from Outer Space);

(c) Serving as a facilitator on issues such as nuclear-powered space objects prior to launch and notifications relating to the malfunction and re-entry of nuclear-powered space objects (Principles Relevant to the Use of Nuclear Power Sources in

[5] The five outer space treaties are: the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space; the Convention on International Liability for Damage Caused by Space Objects; the Convention on Registration of Objects Launched into Outer Space; and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. The five declarations and sets of legal principles are: the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space; the Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting; the Principles Relating to Remote Sensing of the Earth from Outer Space; the Principles Relevant to the Use of Nuclear Power Sources in Outer Space; and the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.

Outer Space and Convention on International Liability for Damage Caused by Space Objects).

27. The Office for Outer Space Affairs assumes those responsibilities on behalf of the Secretary-General. The treaty implementation mechanisms of the Office have therefore been oriented towards information-gathering, verification, dissemination and exchange, with information-gathering conducted on a daily basis. At present, the primary platform used by the Office for information exchange and dissemination is its website. The website includes all documents containing information submitted by States and international intergovernmental organizations under the Convention on Registration of Objects Launched into Outer Space and resolution 1721 (XVI) B, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space and the Principles Relevant to the Use of Nuclear Power Sources in Outer Space.

28. In addition, every year, the Office for Outer Space Affairs makes available to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space an updated table on the status of international agreements relating to activities in outer space, based on information provided by the depositories of the relevant instruments. The table covers party and signatory status to the five United Nations treaties on outer space, as well as the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, the Convention relating to the Distribution of Programme-carrying Signals Transmitted by Satellite and instruments establishing international intergovernmental space-related institutions and organizations. The table is available on the website of the Office.[6]

Registration of objects launched into outer space

29. Of the stated obligations outlined above, the primary responsibility of the Secretary-General under the treaties is the maintenance of the Register of Objects Launched into Outer Space. The intent behind the registration of a space object with the Secretary-General is to identify which State retains jurisdiction and control over a space object and bears international responsibility for it. These factors relate to a State's potential liability for any damages that may be caused by the object.

30. While registration of space objects with the Secretary-General is a requirement for States parties to the Convention on Registration of Objects Launched into Outer Space, the mechanism for voluntary space object registration established under resolution 1721 (XVI) B is still used by States that are not parties.

31. The Register of Objects Launched into Outer Space should be considered the first international mechanism established for promoting transparency in outer space activities.

32. At present, 90 per cent of all satellites launched into outer space have been registered under the Convention on Registration of Objects Launched into Outer Space and resolution 1721 (XVI) B.

33. The Secretary-General has also disseminated information relating to safety assessments for nuclear-powered space objects. The most recent notification of a safety assessment was by the United States of America, for the Mars Science Laboratory, launched in 2011 (A/AC.105/1012). Earlier notifications can be found on the Office for Outer Space Affairs website.[7]

[6] www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/status/index.html.

[7] www.unoosa.org/oosa/en/treatyimplementation/ost-art-xi/index.html.

34. At present, the majority of States that are party to the Convention on Registration of Objects Launched into Outer Space are registering their military and intelligence payloads.

35. With a view to improving space object registration, in 2007, the General Assembly adopted resolution 62/101, entitled "Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects". The resolution, based on recommendations made available in a background document by the Office for Outer Space Affairs (A/AC.105/C.2/L.255 and Corr.1 and 2), has resulted in positive changes to the registration practices of States and international intergovernmental organizations.

36. In addition, since 2001, the Office for Outer Space Affairs has proactively worked with States to increase the number of States registering space objects, resolve conflicts in information provided by multiple States and harmonize the information provided by States. The Office has also developed a model registration form to assist States and organizations in registering space objects and to enhance information exchange.[8]

37. As part of the registration process, some States provide information beyond what is required under the Convention on Registration of Objects Launched into Outer Space. A number of States with indigenous launch capabilities provide information on satellites launched by them on behalf of foreign clients. (Those objects are not registered by the launch provider.) Similarly, the Office for Outer Space Affairs, on occasion, receives information on future satellite launches. (These are known as pre-launch notifications.)

Exchange of information on forecast natural hazards in outer space

38. Under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, the Secretary-General has responsibilities regarding the dissemination of information on outer space activities, including on the discovery of harmful phenomena. The Office for Outer Space Affairs carries out that work on behalf of the Secretary-General (see the information provided below under risk reduction notifications).

39. Although the term "phenomena" is not defined in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, space weather phenomena is regarded as a natural hazard falling within that scope. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space has an item on space weather on its agenda, and the Office for Outer Space Affairs has carried out scientific and technical assistance and capacity-building in that field. The International Space Weather Initiative, for example, is an international cooperation programme to advance space weather science. The goal is to develop scientific capacity and to reconstruct and forecast near-Earth space weather. The programme includes instrumentation, data analysis, modelling, education, training and public outreach. The Initiative was launched in 2009 and concluded as an agenda item of the Subcommittee in 2012. Initiative activities continue, however, and, since 2013, they have been discussed under the regular agenda item on space weather of the Subcommittee. An expert group of the Subcommittee has been established to study the topic in a more in-depth manner (see also para. 87 below).

40. The seventeenth World Meteorological Congress, in May 2015, decided that WMO would engage in international coordination of operational space weather

[8] www.unoosa.org/oosa/en/spaceobjectregister/resources/index.html.

monitoring and forecasting, with a view to supporting the protection of life, property and critical infrastructures and related economic activities. Building on the preliminary activities conducted in this domain over the past six years, which have involved 26 WMO members working in collaboration with several United Nations organizations and entities (the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU) and the Office for Outer Space Affairs), a four-year plan for space weather coordination has been developed. It is aimed at enabling members to establish fully operational space weather services, sharing observation data, products and best practices, and ensuring interoperability and standardization, as appropriate, to efficiently respond to global challenges. A priority objective is to coordinate a technical response to ICAO requirements for the space weather services that should be provided to international air navigation from 2018 onwards.

Notification of planned spacecraft launches

41. The Hague Code of Conduct against Ballistic Missile Proliferation is the result of the international community's efforts to internationally regulate the area of ballistic missiles capable of carrying weapons of mass destruction. It is the only multilateral transparency and confidence-building instrument concerning the spread of ballistic missiles.

42. There is no specific mechanism with the United Nations system for the provision of pre-notified information on all planned spacecraft launches. In its resolutions 65/73 and 67/42, the General Assembly welcomed progress in implementing the Hague Code of Conduct against Ballistic Missile Proliferation, which contributes to enhancing transparency and building confidence among States through the submission of pre-launch notifications and annual declarations on space and ballistic missile activity. In its resolution 69/44, the Assembly called upon States, in particular those possessing space launch vehicle and ballistic missile capabilities, to subscribe to the Code of Conduct.

43. States that subscribe to the Hague Code of Conduct against Ballistic Missile Proliferation commit themselves to exchanging pre-launch notifications on their ballistic missile and space-launch vehicle launches and test flights, including information on the generic class of the ballistic missile or space launch vehicle, the planned launch notification window, the launch area and the planned direction. Subscribing States also commit themselves to submitting an annual declaration of their country's policies on ballistic missiles and space-launch vehicles. Information received from subscribing States on notifications is kept confidential. The Ministry of Foreign Affairs of Austria serves as the Immediate Central Contact (executive secretariat) for subscribing States, of which there are 138.

44. The Office for Outer Space Affairs also currently provides some pre-launch information using open source data. For example, it provides pre-launch notifications to the Incident and Emergency Centre of the International Atomic Energy Agency (IAEA) on nuclear-powered satellites and other non-nuclear deep space satellite missions (see para. 47 below). The Office could expand that function, if requested to do so by Member States, perhaps making use of software similar to that used to disseminate notifications under the Hague Code of Conduct against Ballistic Missile Proliferation.

C. Risk reduction notifications

Information exchange and notification procedures under the legal regime of outer space

45. The Secretary-General's obligations under international space law already include the requirement for the immediate and effective dissemination of information comparable to the risk reduction notifications recommended by the Group of Governmental Experts. Historically, States have used the existing treaty mechanisms to convey information on controlled and uncontrolled re-entries of high-interest space objects, emergency situations relating to nuclear power sources and intentional orbital breakups. Depending on the circumstances, such notifications have been processed on a priority basis and disseminated immediately.

46. Past examples of notifications to the Secretary-General of the uncontrolled re-entry of high-interest space objects can be found in documents A/AC.105/648, A/AC.105/803 and Add.1. The Secretary-General has been informed of other events that have been considered to be potentially high risk, such as the Earth fly-by of a nuclear-powered probe, and has also been informed of controlled high-risk re-entry events (see, for example, A/AC.105/759 and Add.1).

47. The Secretary-General has been notified of emergency situations concerning nuclear-powered space objects. Those notifications were made under article IV, paragraph 2, of the Convention on Registration of Objects Launched into Outer Space, prior to the adoption of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space in 1992 (see, for example, ST/SG/SER.E/72 and Add.1-4 and ST/SG/SER.E/176 and Add.1-6).

48. In line with the above precedents, treaty mechanisms already established under the Office for Outer Space Affairs could be expanded to provide regular notifications relating to risk reduction in outer space activities. To facilitate the immediate and effective dissemination of such information, an online platform could be developed. States could enter information directly into the platform, and that information could be distributed to a network of national focal points. The Office's in-house capabilities in the area of space technology could be used, and grown as necessary, to validate and verify the information. In addition, as it has done in the past through its media monitoring of space activities, the Office could identify possible relevant events for follow-up by national focal points.

49. With regard to mechanisms for information exchange and notification within the United Nations system, the Office for Outer Space Affairs is part of the Joint Radiation Emergency Management Plan of the International Organizations, the purpose of which is to coordinate the arrangements of relevant international organizations to prepare for and respond to nuclear or radiological emergencies. Its role is to facilitate information exchange on the possible re-entry of a nuclear-powered space object, and the Office maintains a communication channel with the IAEA Incident and Emergency Centre for that purpose. This mechanism is also used by the Office to provide pre-launch notifications of nuclear-powered space objects to the Incident and Emergency Centre on the basis of information provided by States under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies and the Principles Relevant to the Use of Nuclear Power Sources in Outer Space. It has also been used to provide information on the launch of non-nuclear-powered high-interest deep space missions. The mechanism has been used by the Incident and Emergency Centre following the notification by a State of the recovery of a possible space object. In such cases, the Office has utilized in-house technical

resources and/or requested assistance from States in identifying the space object and the State responsible.

Frequency management

50. ITU is the specialized United Nations agency for information and communication technologies responsible for taking such action as may be appropriate under its basic instruments. Those instruments are the Constitution, the Convention, the Radio Regulations, the Rules of Procedure and the Recommendations. Principles of use of the orbit/spectrum resource come under article 44 of the Constitution, the allocation of frequency bands comes under article 5 of the Radio Regulations, the regulatory procedures and plans to secure access to the orbit/spectrum resource come under articles 9 and 11 and appendices 30, 30A and 30B of the Radio Regulations and operational measures in case of harmful interference come under article 45 of the Constitution and articles 15 and 16 of the Radio Regulations. The ITU Radiocommunication Sector, by ensuring the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunications services, including those using the geostationary satellite orbit or other satellite orbits subject to the provisions of article 44 of the Constitution, creates the regulatory and technical bases for the sustainable development and effective operation of various satellite services used, in particular, for global navigation satellite systems, meteorological satellite services, fixed, mobile and broadcasting satellite services and climate monitoring and data dissemination systems by allocating the radio-frequency spectrum or satellite orbit resources necessary, carrying out studies and developing international standards on treaty status (Radio Regulations) and voluntary international standards (ITU Radiocommunication Sector Recommendations) for space-based and other telecommunication systems and networks.

51. In 2014, the Plenipotentiary Conference of ITU adopted resolution 186 on strengthening the role of ITU with regard to transparency and confidence-building measures in outer space activities. In its resolution 70/53, the General Assembly welcomed that resolution.

D. Contact and visits to space launch sites and facilities

Voluntary familiarization visits

52. The Group of Governmental Experts noted that voluntary familiarization visits can provide opportunities to improve international understanding of a State's processes and procedures for space activities (A/68/189, para. 46). As a response to that recommendation, the Office for Outer Space Affairs could assist Member States that wish to host and/or participate in voluntary familiarization visits by disseminating related communications, such as invitations.

Expert visits, including visits to space launch sites, and invitations to international observers to launch sites, flight command and control centres and other operations facilities of outer space infrastructure

53. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies provides the basis for voluntary visits. Article X states that States parties to the Treaty shall consider requests by other States parties to the Treaty to be afforded an opportunity to observe the flight of space objects launched by those States.

54. Given the role of the Office for Outer Space Affairs in implementing the Secretary-General's obligations under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon

and Other Celestial Bodies, the Office is well positioned to, at the request of Member States, share information that would facilitate voluntary visits or even organize the logistics of the visits. The broad network of governmental entities and non-governmental institutions under the mandated programmes of the Office would provide a basis for such activities. The extent to which those efforts may be undertaken will depend on the availability of resources.

Demonstrations of rocket and space technologies

55. Demonstrations of rockets and space technologies could be performed under the same framework as that for expert visits (see paras. 53 and 54 above).

E. Capacity-building, coordination and outreach

56. International cooperation in the peaceful uses of outer space provides a basis for all States to develop and strengthen their capacity to undertake and/or derive benefits from space activities. The Group of Governmental Experts noted that, while there are a number of States that have acquired significant space-related capabilities, many non-spacefaring States have a strong desire to participate directly in outer space activities and to share in space technology (A/68/189, para. 50).

57. The overall capacity-building programme of the Office for Outer Space Affairs, covering space science and technology applications and space law and policy, constitutes a foundation for promoting transparency and confidence-building measures in outer space activities.

58. The United Nations Programme on Space Applications, implemented by the Office for Outer Space Affairs, was highlighted by the Group of Governmental Experts as an example of a well-established capacity-building programme. Under the Programme, conferences, workshops, symposiums and training courses addressing topics relating to space science, technology and education, including within the frameworks of the Basic Space Science Initiative, the Basic Space Technology Initiative and the Human Space Technology Initiative, have been and continue to be organized, in close cooperation and coordination with other relevant entities.

59. Under the United Nations Platform for Space-based Information for Disaster Management and Emergency Response, which was established in 2006 under the Office for Outer Space Affairs, solutions are developed to address the limited access that developing countries have to specialized technologies that can be essential in the management of disasters and reduction of disaster risks. The Platform facilitates cooperation between satellite data and information providers and various groups of users of such data, such as policymakers, disaster risk managers and emergency responders, with the objective of establishing a better flow of information between all stakeholders and affected populations.

60. The Office for Outer Space Affairs also has the mandate to undertake capacity-building activities relating to space law. The Office maintains a directory of education opportunities in space law and a collection of national space legislation and regulatory frameworks and international agreements on space cooperation. The Office has coordinated the development of a space law curriculum, which forms a basic course on space law that can be used by universities and other academic institutions, in particular for the benefit of developing countries. The curriculum is complemented by supplemental reference materials and is available on the website of the Office.[9]

[9] www.unoosa.org/oosa/en/ourwork/spacelaw/space-law-curriculum.html.

61. Dedicated United Nations/host country space law workshops have been held and hosted by Argentina, Brazil, China, Iran (Islamic Republic of), the Netherlands, Nigeria, the Republic of Korea, Thailand and Ukraine. The proceedings of the workshops have been published, and official parliamentary reports containing conclusions, observations and recommendations of the workshops have been presented to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space.

62. The tenth United Nations Workshop on Space Law, on the theme "Contribution of Space Law and Policy to Space Governance and Space Security in the Twenty-first Century", was held in Vienna from 5 to 8 September 2016. The Workshop was organized by the Office for Outer Space Affairs, in coordination with the Office for Disarmament Affairs, and co-sponsored by the United Nations Institute for Disarmament Research (UNIDIR) and Secure World Foundation. The Workshop resulted in a set of conclusions, observations and recommendations. The report is issued as document A/AC.105/1131.

63. The General Assembly, in its resolution 70/82, encouraged the Office for Outer Space Affairs to conduct capacity-building and outreach activities associated with space security and transparency and confidence-building measures in outer space activities, as appropriate, and within the context of the long-term sustainability of outer space activities.

64. The Office for Outer Space Affairs also provides capacity-building and guidance to assist States in their registration of space objects. Upon receipt of a submission from an accredited permanent mission to the United Nations, for example, the Office verifies information on each space object using open source data. If there are perceived discrepancies, the Office enters into a dialogue with the submitting party. That process is facilitated by a network of space object registration national focal points, established in accordance with General Assembly resolution 62/101.

65. Small and very small satellites and their applications have made it possible for an increasing number of governmental and non-governmental organizations to participate in and benefit from space activities. Recognizing the requirements under international law for all entities launching and operating satellites, the Office for Outer Space Affairs and ITU have collaborated to produce a guidance document to assist small satellite developers and operators with space object registration and frequency management. The document, available on the websites of the Office[5] and of ITU, also covers information on the authorization and licensing of satellite missions and space debris mitigation measures.

66. To date, there have been two ICAO/Office for Outer Space Affairs aerospace symposiums. The first, held in Montreal, Canada, in 2015, provided a forum for various stakeholders in the aviation and space sectors to discuss aerospace innovation and the most recent trends in commercial space transportation and suborbital operations, as well as regulatory mechanisms and authorization and licensing at the national level. The second symposium, held in Abu Dhabi in 2016, expanded the dialogue between the aviation and space communities on additional topics relating to space debris, space weather and other safety issues in aviation and space flight. The third symposium in the series will be held in Vienna from 29 to 31 August 2017.

67. UNIDIR supports Member States, especially emerging space actors, in building capacity and understanding on international peace and security-related space issues to allow for more effective participation of all space stakeholders in multilateral processes and dialogue on the development of a stable and sustainable space security regime.

68. A key part of the space security activities of UNIDIR is its annual outer space security conference series, organized together with the Secure World Foundation and the Simons Foundation. The conferences provide a forum in which established and emerging actors are able to share views and explore concerns about and options for attaining greater understanding and consensus on the issues that have an impact on space security and stability initiatives.

69. UNIDIR, with the support of the European Union, carried out a project from 2012 to 2014 on facilitating the process for the development of an international code of conduct for outer space activities. The aim of the project was to frame the diplomatic process towards producing a widely accepted and implemented code.

70. UNIDIR also undertook a study looking at the reliance of "middle powers" on space resources in the context of space security, with the purpose of supporting them in understanding the strategic choices with which they are faced regarding space security concerns. The study was aimed at supporting the development of effective approaches to space security questions relevant to current and future "middle powers" and to discuss options for action.

71. UNIDIR also provided support to the third Regional Forum Workshop on Space Security of the Association of Southeast Asian Nations, which was co-hosted by China, the Lao People's Democratic Republic, the Russian Federation and the United States, building on the success of earlier regional capacity-building seminars.

72. The Office for Disarmament Affairs, in cooperation with the European Union, convened a panel discussion at the fifty-eighth session of Committee on the Peaceful Uses of Outer Space, held in Vienna in June 2015, on the challenges of and opportunities for multilateral efforts for the enhancement of security and stability in outer space activities. Discussions included an exchange of views on the implementation of transparency and confidence-building measures, including a possible multilateral code of conduct. Member States are encouraged to consider co-sponsoring additional outreach activities on the margins of relevant international conferences in order to facilitate the participation of individuals with relevant expertise in the area of outer space security, safety and long-term sustainability.

73. The Office for Disarmament Affairs and the Office for Outer Space Affairs provided assistance to the Chairs of the First and Fourth Committees of the General Assembly in the organization of the joint ad hoc meeting on possible challenges to space security and sustainability, which was convened pursuant to General Assembly resolution 69/38 and held at Headquarters on 22 October 2015.

74. At that joint ad hoc meeting, Member States expressed interest in ensuring greater coordination on the implementation of transparency and confidence-building measures in outer space between those dealing with the international peace and security (i.e., military aspects) of outer space and those dealing with the peaceful uses (i.e., civil and commercial aspects) of outer space. Member States held an exchange of views on various aspects of security in outer space that reflected the growing recognition of the need for States to address the cross-cutting aspects of security challenges in outer space in a comprehensive manner. There was also recognition of the need for the various United Nations bodies to consider how to further advance transparency and confidence-building measures and provide for their universal consideration and support. Member States voiced support for additional joint meetings of the two Committees.

75. In it resolution 70/53, the General Assembly welcomed the joint ad hoc meeting and the substantive exchange of opinions on various aspects of security in outer space that had taken place during the meeting.

76. The General Assembly, in its resolution 71/90, decided to convene, within existing resources, a joint half-day panel discussion of the Disarmament and International Security Committee (First Committee) and the Special Political and Decolonization Committee (Fourth Committee), to constitute a joint contribution by the First and Fourth Committees to the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and to include in the provisional agenda of its seventy-second session, under the item entitled "International cooperation in the peaceful uses of outer space", a sub-item entitled "Joint panel discussion of the First and Fourth Committees on possible challenges to space security and sustainability".

F. Intergovernmental platforms, mechanisms and political initiatives

77. Partnership and international cooperation are important vehicles for developing and exchanging knowledge, expertise and technologies and, in turn, bolster transparency and build confidence between States. United Nations entities support Member States through various intergovernmental platforms, mechanisms and political initiatives relating to outer space activities, which include but are not limited to the Committee on the Peaceful Uses of Outer Space, the Conference on Disarmament, the Disarmament Commission and the General Assembly.

78. The General Assembly adopted resolution 71/32, entitled "No first placement of weapons in outer space", on 5 December 2016. The "no first placement" pledge was proposed by the Russian Federation as an interim measure pending the negotiation and adoption of a legally binding treaty on the placement of weapons in outer space. In that resolution, the Assembly encouraged all States to make a political commitment not to be the first to place weapons in outer space. In the same resolution, the Assembly noted the importance of the political statements made by a number of States making such a commitment, namely, Argentina, Armenia, Belarus, Bolivia (Plurinational State of), Brazil, Cuba, Indonesia, Kazakhstan, Kyrgyzstan, Nicaragua, Russian Federation, Sri Lanka, Tajikistan and Venezuela (Bolivarian Republic of).

79. The Office for Disarmament Affairs provided substantive support to the Chair of the 2016 substantive session of the Disarmament Commission in his efforts to seek agreement on the inclusion of an additional agenda item for the Commission, further to proposals by Member States to address the practical implementation of transparency and confidence-building measures in outer space activities. By its resolution 71/82, the General Assembly encouraged the Commission to hold informal discussions during its substantive session in 2017, without prejudice to its existing agenda items, on the item entitled "In accordance with the recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities (A/68/189), preparation of recommendations to promote the practical implementation of transparency and confidence-building measures in outer space activities with the goal of preventing an arms race in outer space".

80. In July 2015, the European Union convened a multilateral meeting in New York on an international code of conduct for outer space activities, with the assistance of the Office for Disarmament Affairs. Participants discussed possible elements of a code of conduct, including its purpose, scope and general principles, and noted the value that a code could bring to promoting the safety, security and sustainability of outer space activities through transparency and confidence-building measures, thereby serving to safeguard the continued peaceful use of outer space and prevent outer space from becoming a zone of conflict.

81. At the conclusion of the meeting, the Chair noted that, on the basis of the discussions and considering the importance afforded to the principles of openness, transparency, universality and inclusiveness, the way forward that had gained the most support would be pursuing negotiations within the framework of the United Nations, through a mandate from the General Assembly. Nevertheless, diverging views still existed among Member States regarding how to reach a multilateral agreement within the framework of the United Nations.

82. The Working Group on the Long-term Sustainability of Outer Space Activities, established in February 2010 by the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space (A/66/20, annex II, para. 5), is tasked with identifying potential risks to the long-term sustainability of outer space activities and producing voluntary guidelines to reduce those risks. A first set of guidelines was agreed to at the fifty-ninth session of the Committee and is now ready for States and international intergovernmental organization to consider implementing on a voluntary basis (A/71/20, paras. 130 and 135). The Working Group continues its work, under an extended mandate, with a view to developing the preambular text and a second set of guidelines, to be brought together with the first set to form a full compendium of guidelines for the long-term sustainability of outer space activities (A/71/20, paras. 133 and 137). The Office for Outer Space Affairs provides secretariat services to the Working Group.

83. The International Committee on Global Navigation Satellite Systems, established under the umbrella of the United Nations and serviced by the Office for Outer Space Affairs, which acts as its executive secretariat, promotes voluntary cooperation on matters of mutual interest relating to civil satellite-based positioning, navigation, timing and value-added services. The International Committee strives to encourage and facilitate compatibility, interoperability and transparency between all satellite navigation systems, to promote and protect the use of their open service applications and to therefore benefit the global community.

84. Following an increasing number of requests from Member States to share positioning data and to leverage existing global positioning infrastructure in the field of geospatial information management, the working group on the global geodetic reference frame of the Committee of Experts on Global Geospatial Information Management has been successful in building consensus among Member States and policymakers about the importance of global geodesy for sustainable development. The increased understanding that geodesy is fundamental for societal positioning activities led to the General Assembly adopting resolution 69/266, on a global geodetic reference frame for sustainable development, in February 2016. Under the guidance of the Committee of Experts, the global geospatial community is now developing a road map to operationalize the vision set out in the resolution.

85. The International Satellite System for Search and Rescue, a satellite-based search and rescue distress alert detection and information distribution system, is operated with the assistance of ICAO, the International Maritime Organization, ITU and other international organizations. Participants in the system work to ensure the compatibility of the distress alerting services of the International Satellite System with the needs, standards and applicable recommendations of the international community.

86. International coordination mechanisms also exist to address the threat of a near-Earth object impact. The Committee on the Peaceful Uses of Outer Space established the Action Team on Near-Earth Objects, which led to the creation of the International Asteroid Warning Network and the Space Mission Planning Advisory Group. The Network is an interface linking the institutions performing functions such as discovering, monitoring and physically characterizing the potentially

hazardous near-Earth object population and maintaining an internationally recognized clearing house for the receipt, acknowledgment and processing of all near-Earth object observations. It was established as a network that would also recommend criteria and thresholds for notification of an emerging impact threat and recommend strategies using well-defined communication plans and procedures to assist Governments in their response to predicted impact consequences. The Advisory Group also has an interface role and links Member States with space agencies and other relevant entities. Its responsibilities include laying out the framework, timeline and options for initiating and executing space mission response activities and promoting opportunities for international collaboration on research and techniques for near-Earth object deflection. The Office for Outer Space Affairs serves as permanent secretariat to the Advisory Group.

87. The Expert Group on Space Weather of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space promotes awareness, provides guidance and enables communication and cooperation in space weather-related activities among States and relevant national and international organizations.

IV. Replies received from Governments

Brazil

[Original: English]
[13 February 2017]

As a developing country with a peaceful space programme, Brazil fully shares the view outlined in the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies that space activities must be carried out in conformity with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding.

The world we live in greatly depends on space-based resources. The use of force in outer space and its weaponization are incompatible with the long-term sustainability of outer space activities. Therefore, States must translate into concrete action the recognition of the common interest of all mankind in the progress on the exploration and use of outer space for peaceful purposes.

The joint meeting of the First and Fourth Committees in 2015 provided an opportunity for a better understanding of the possible consequences of space weaponization and highlighted the importance of preserving peace and transparency in outer space in order to avoid confrontation.

Together with a growing number of countries, Brazil has been advocating the importance of a high-level commitment to a policy of no first placement of weapons in outer space. The broadest possible international adherence to this policy will greatly contribute to strengthening international peace and security. This confidence-building measure could be seen as an interim step towards a legally binding instrument that would promote the unimpeded peaceful use of outer space, while strengthening the security and predictability of outer space activities by preventing the placement of weapons in outer space.

The Committee on the Peaceful Uses of Outer Space should play a central role in promoting transparency and confidence in outer space activities, inasmuch as it

has the mandate necessary to discuss issues relating to disarmament that may affect the sustainability of the space environment.

International cooperation is another important tool to increase the number of spacefaring nations, especially among developing countries. By establishing joint projects in outer space, States exchange information and share human and technological resources, thus contributing to preserve outer space as a peaceful environment.

China[10]

[Original: Chinese]
[10 February 2017]

China attaches great importance to this issue.

China believes that the adoption by all countries of an appropriate level of transparency and confidence-building measures with respect to their outer space activities will help to increase mutual trust, reduce misunderstandings, promote cooperation in the peaceful use of outer space, and to a certain extent help to prevent the weaponization of outer space and assist in the verification of an outer space arms control treaty in the future. Indeed, the most important transparency and confidence-building measure in that regard would be for all countries to commit to refrain from deploying weapons in outer space and to prevent the weaponization of outer space and a space arms race. However, outer space transparency and confidence-building measures are not legally binding and thus cannot fill the gaps in existing international legal instruments on outer space. Those measures can serve as a useful supplement in the negotiation and conclusion of international legal instruments to prevent the weaponization of outer space and a space arms race, but cannot replace or have the status of legal instruments.

China is confident that the negotiation and conclusion of new international legal instruments is the best way to prevent the weaponization of outer space and a space arms race. China hopes that the Conference on Disarmament will begin substantive work as soon as possible and launch formal negotiations on the draft treaty on outer space submitted by the Russian Federation and China.

China has proactively adopted a series of transparency and confidence-building measures aimed at maintaining peace, security and long-term sustainability in outer space. Those measures include:

(a) Maintaining transparency in its outer space policies. In the latest version of its white paper on outer space, published in December 2016, China reiterated its unwavering stance on the peaceful use of outer space, its opposition to the weaponization of outer space and a space arms race, and explained in detail its aims and principles with respect to outer space activities and the primary tasks in their development over the next five years;

(b) Diligently fulfilling its obligations with respect to the Convention on Registration of Objects Launched into Outer Space. China has made public through the media many of its major space launch activities. It has communicated and coordinated with concerned States and international organizations;

(c) Using relevant United Nations principles and frameworks as a basis for conducting practice activities related to nuclear power source safety;

[10] The full text of the submission of China can be found on the website of the Office for Disarmament Affairs: www.un.org/disarmament/.

(d) Engaging in regular bilateral exchanges with concerned States on space debris and satellite collision warnings;

(e) Actively participating in the Committee on the Peaceful Uses of Outer Space, the Inter-Agency Space Debris Coordination Committee and in the formulation of international space debris mitigation guidelines under multilateral mechanisms. China is making unremitting efforts to strengthen its capacity and mechanisms;

(f) Signing over 100 cooperation agreements and memorandums of understanding with over 30 States and actively engaging in space cooperation within the framework of the United Nations the BRICS countries (Brazil, the Russian Federation, India, China and South Africa) and the Asia-Pacific Space Cooperation Organization;

(g) Hosting, on numerous occasions and on a voluntary basis, visits by government officials and aerospace experts from various States to space launch sites in China.

Cuba

[Original: Spanish]
[8 February 2017]

Cuba supports General Assembly resolution 70/53 entitled "Transparency and confidence-building measures in outer space activities", which promotes the implementation of the measures, conclusions and recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, considered by the Assembly on 5 December 2013.

Transparency and confidence-building measures are of great value as a contribution to the strengthening of international peace and security. Confidence-building is a step-by-step process that requires consensus among the participating States.

Global, regional, subregional and national efforts are relevant and necessary to increase transparency and build confidence among States in outer space activities. It is necessary to strengthen, improve and expand them because of their valuable contribution to the promotion of understanding, transparency and cooperation among States.

In this regard, we believe that further transparency and confidence-building measures should be examined in the search for multilateral agreements, to ensure the prevention of an arms race in outer space, through the following actions:

(a) An international conference to verify strict compliance with existing agreements on the peaceful uses of outer space.

(b) A review of the legal regime regulating this area in the light of the ongoing development of technology, in order to make it more effective.

(c) The adoption of multilateral agreements for the exchange of information relating to the use of outer space.

Because they are voluntary in nature, confidence-building measures cannot be imposed; nor are there any one-size-fits-all solutions. The success of such measures will depend to a large extent on achieving genuine consensus among the States participating in their implementation.

The adoption of transparency and confidence-building measures in outer space activities which fully respect the purposes and principles of the Charter of the United Nations and the principles and agreements governing the activities of States in the exploration and use of outer space for peaceful purposes, and which enjoy the consent and participation of the parties concerned, can help to avoid conflict and contribute to the creation of an enabling environment for international cooperation and the exchange of information to facilitate the legitimate right of all States to the use and exploration of outer space for peaceful purposes.

At the same time, these measures cannot be an alternative to the need to strengthen the existing outer space legal regime. The existing legal regime should be consolidated and strengthened to prevent an arms race in outer space.

For this reason Cuba supports the urgent adoption of a treaty on the prevention and prohibition of the placement of weapons in outer space. An arms race in outer space would entail serious dangers for international peace and security. The weaponization of outer space is unacceptable.

Our country attaches great importance to the development of space science and its applications, particularly in the forecasting of disasters (cyclones, inland and coastal floods and forest fires) and studies of hazards, vulnerability, risk and other issues.

Cuba is interested in establishing regional and international programmes of cooperation in the area of disaster prevention. In this regard, cooperation and confidence-building can bolster an increase in joint programmes and the exchange of experiences.

El Salvador

[Original: Spanish]
[3 February 2017]

El Salvador, as a State Member of the United Nations, believes all activities and actions that might contribute to the prevention of the use of weapons in outer space are important, consistent with its commitment to the establishment of conditions that might foster and strengthen international cooperation relating to the exploration and use of outer space for exclusively peaceful purposes, without violating the sovereignty and laws of the States concerned. In line with the above, El Salvador is undertaking the following actions:

(a) To implement transparency and confidence-building measures, the Government regularly reports to the United Nations on the actions it is undertaking to contribute to the prevention of the illegal use of weapons, including those that may be used in outer space.

(b) As a Member State, it contributes through transparency efforts to confidence-building in all activities related to the maintenance of international peace and security.

(c) In El Salvador, there are control mechanisms to prevent the entry or exit of weapons that could be launched into outer space. Such controls are implemented at land, air and maritime borders.

(d) El Salvador has no current capacity to launch space objects. However, it is committed to supporting and promoting the use of outer space for exclusively peaceful purposes, and making every effort to implement transparency and confidence-building measures in activities relating to the proper use of outer space.

(e) The confidence-building measures implemented by El Salvador include activities relating to the proper use of land, air, maritime and outer space as appropriate.

Accordingly, El Salvador, as a Member State, supports all activities that can enhance the transparency of the use of outer space as well as the incorporation of appropriate provisions in States' domestic legislation, without violating their laws and sovereignty.

France

[Original: French]
[3 February 2017]

France is committed to the output of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities, of which it was a member between 2010 and 2013. Not only are these measures complementary to the transparency and confidence-building provisions set out in the existing international legal texts, but they also enrich the existing body of non-legally binding principles, which encourage responsible behaviour in outer space, thereby ensuring access to and the peaceful uses of outer space. France therefore associates itself fully with the European Union communication that recalls that such measures make an important contribution to maintaining the security, safety and sustainability of outer space activities, as was the case with the draft International Code of Conduct for Outer Space Activities proposed by the European Union.

France is also committed to the effective implementation of transparency and confidence-building measures in outer space activities. As reflected in the European Union communication, France is implementing these recommendations in its space-related activities. It is communicating actively on its space policy, including in the area of defence. As a party to the Convention on Registration of Objects Launched into Outer Space, France provides the required information and maintains a national registry of objects in orbit which is available to the public. The fact that it possesses, in the Grand Réseau Adapté a la Veille Spatiale, a space monitoring tool unique in Europe enables it to contribute effectively to the sharing of information, at the European level, on the risks of collision in outer space. Through its space agency, the Centre national d'études spatiales, France has specialized in the analysis of the risks of collision in orbit and recommended avoidance manoeuvres. Today it protects a fleet of 23 French and European satellites. France is also involved in space weather projects in Europe. Moreover, it is engaged in international cooperation projects in the area of space debris, as well as in space missions relevant to sustainable development and the academic realm.

Like the European Union, France supports continued efforts to establish principles of responsible behaviour across the full range of space activities, with a view to strengthening international cooperation, the commitment to debris avoidance, equitable access to outer space and transparency in space activities. In that regard, it welcomes the progress made by the Working Group on the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space on guidelines relating to the long-term sustainability of outer space activities. France hopes that the extension of the Group's mandate through 2018 will make it possible to adopt a coherent, solid set of guidelines. Like the transparency and confidence-building measures relating to outer space activities, this initiative attests to the value of seeking practical measures that make a tangible contribution to facilitating access to and use of outer space for peaceful purposes.

Jordan

[Original: English]
[13 January 2017]

Space-borne systems and space applications are vital to the daily life and workings of every modern nation in the world and their peoples. They enhance scientific knowledge, national security and global economic interests. Space applications improve life on the ground through weather forecasting, environmental monitoring, remote sensing, satellite navigation, satellite telecommunications and much more.

However, a number of challenges exist in the space arena, such as orbital congestion, situational awareness and collision avoidance. With the continuous increase in the number of satellites and of space debris, the circumterrestrial space environment will become increasingly hazardous to both manned and unmanned spaceflight.

For that purpose, many nations in the world are pursuing a variety of unilateral, bilateral and multilateral transparency and confidence-building measures to address these challenges and to strengthen long-term sustainability, stability, safety and security in space.

The international community increasingly recognizes the importance and usefulness of transparency and confidence-building measures as a way to promote openness and to reduce tensions between nations, in particular in areas where mistrust or misperception may exist. Overcoming the latter problems requires building confidence between nations, which can be achieved only with goodwill, transparency and openness, through information-sharing, data exchange and personal contact.

The United Nations and the international community have recognized the contributions of the transparency and confidence-building measures to peace, security and stability. It is well known that such measures have been successfully used in the past in bilateral, regional, and multilateral forums, for example, during the Cold War era, which has, on occasion, spared the world from potential armed conflicts.

The successful history of transparency and confidence-building measures in other areas, such as strategic nuclear and conventional forces, suggests that they can also make important contributions to the field of space.

Activities in space are often the source of uncertainty, suspicions and mistrust, in part due to the frequently classified technologies and systems used by the military and intelligence organizations of spacefaring nations.

Space-related transparency and confidence-building measures enable us to address critical areas, such as orbital debris, space situational awareness and collision avoidance, and through them help to increase familiarity and trust and encourage openness among spacefaring nations.

Currently, there are a number of ongoing efforts to establish multilateral transparency and confidence-building measures: the work of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities and the proposed international code of conduct for outer space activities.

An international code of conduct, if adopted, would help to prevent mishaps, misperceptions and mistrust in space by establishing non-legally binding guidelines that reduce the hazards of accidental and purposeful debris-generating events. It

would encourage all spacefaring nations to act responsibly in a space environment that is increasingly congested and contested. It would also address the challenge of collision avoidance by increasing the transparency of operations in space.

Other effective transparency and confidence-building measures may include dialogue between nations on space security issues, the sharing of space policies and budgets, expert visits and information exchanges on natural debris hazards.

Paraguay

[Original: Spanish]
[1 February 2017]

With regard to the recommendations in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, which the General Assembly considered on 5 December 2013, the Government of the Republic of Paraguay promulgated Act No. 5740 on 18 November 2016, by which it acceded to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, adopted in London, Moscow and Washington on 27 January 1967, which entered into force in the Republic of Paraguay on 22 December 2016.

Furthermore, it established relevant national mechanisms to review and implement, as appropriate, the other transparency and confidence-building measures proposed in the report, through the establishment of the Paraguay Space Agency, under Act No. 5151, promulgated on 26 March 2014. The Agency's overarching purpose is to promote and manage the development of national space activities, while fostering the technological innovation needed to ensure and take advantage of the peaceful uses of outer space. The Agency will be responsible for developing, designing, proposing and executing national space and aerospace policies and programmes. The Government of the Republic of Paraguay appointed the first president of the Agency on 13 December 2016. Although the National Space Activities Programme is still under development, the Republic of Paraguay is working on a national satellite infrastructure development project.

United Kingdom of Great Britain and Northern Ireland[11]

[Original: English]
[13 February 2017]

The United Kingdom strongly supports transparency and confidence-building measures in outer space activities. We were pleased to contribute to the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities on this matter published in July 2013. Since then, we have engaged in a range of transparency and confidence-building measures, including publishing revised national space policies, increasing cross-government oversight of space activities and increasing international collaboration on space activities to build policy and technical capacity in other nations.

[11] The full text of the submission of the United Kingdom can be found on the website of the Office for Disarmament Affairs: www.un.org/disarmament/.

United States of America

[Original: English]
[10 February 2017]

The United States is pleased to respond to the request from the Office for Disarmament Affairs for its views on the issues outlined in General Assembly resolutions 70/53 and 71/42 regarding transparency and confidence-building measures in outer space activities. The United States submitted its views to the Committee on the Peaceful Uses of Outer Space (A/AC.105/1080) and to the Conference on Disarmament (CD/2078).

The United States was pleased to co-sponsor, with China and the Russian Federation, resolutions 70/53 and 71/42, in which the General Assembly encouraged Member States to hold regular discussions in the Committee on the Peaceful Uses of Outer Space, the Disarmament Commission and the Conference on Disarmament on the prospects for their implementation.

V. Replies received from other entities

European Union

[Original: English]
[10 February 2017]

The European Union and its member States consider resolution 70/53 on transparency and confidence-building measures in outer space activities, adopted by the General Assembly on 7 December 2015, to be an important instrument for the promotion and strengthening of international cooperation in the exploration and use of outer space for peaceful purposes.

In line with this resolution, the European Union and its member States continue to promote the preservation of a safe and secure space environment and the peaceful use of outer space on an equitable and mutually acceptable basis. The European Union recognizes outer space as a global common good, to be used for the benefit of mankind.

The European Union and its member States are increasingly important users of outer space. The European Union has developed two ambitious programmes, Galileo and Copernicus, which complement national space programmes and provide services free of charge that can contribute to implementing the 2030 Agenda for Sustainable Development and its Sustainable Development Goals. The European Union also benefits from space programmes of its member States and the European Space Agency. Furthermore, European space actors increasingly engage in international cooperation to help other countries to mobilize space for their sustainable development.

Our new space strategy for Europe, issued in October 2016, sets out Europe's ambitions in space and confirms that we remain an active and globally engaged partner. On the basis of the values and principles enshrined in United Nations treaties, the European Union will work alongside its member States and partners to promote and protect the sustainable and peaceful use of outer space by all nations. The European Union's new global strategy of June 2016 reconfirms this commitment.

We remain convinced that transparency and confidence-building measures can make an important contribution to the security, safety and sustainability of activities in outer space. The European Union therefore proposed some years ago an

international code of conduct for outer space activities, a fact that was also noted in resolution 70/53. It should be recalled, in this context, that efforts to pursue political commitments, such as a multilateral code of conduct to encourage responsible actions in and the peaceful use of outer space, were also endorsed by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, which the Secretary General convened in 2012 in accordance with General Assembly resolution 65/68.

On this basis, the European Union formally presented its proposal for an international code of conduct for outer space activities in Vienna in June 2012 and subsequently held three rounds of open-ended consultations on this draft text (Kiev in May 2013, Bangkok in November 2013 and Luxembourg in May 2014), which attracted very broad international participation and support. A meeting was therefore convened at Headquarters in New York in July 2015 at the initiative of the European Union, with the assistance of the Office for Disarmament Affairs, entitled "Multilateral negotiations on an international code of conduct for outer space activities". The meeting was very well attended, with delegations from 109 States and 8 intergovernmental and non-governmental organizations. We regret that negotiations could not commence after so many years of consultations, but we remain convinced that the rich and substantial discussions in New York, both on the substance and on the process, constituted an important milestone and will help the international community to move forward.[12]

The growth in the amount of human space-activity, coupled with the increased diversity of space operators, makes it both more complicated and more necessary to develop new norms and rules governing human activity in space. The European Union therefore calls for increased international cooperation that should help us to establish agreed standards of responsible behaviour in outer space. The European Union continues to believe that a non-legally binding agreement negotiated within the United Nations could be a way to proceed.

Globally shaped principles of responsible behaviour across the full range of space activities should serve long-term goals: to increase international cooperation in space, to commit mutually to debris avoidance and to non-interference in the peaceful exploration and use of outer space and to facilitate the equitable access to outer space and increase transparency in the conduct of space activities. The European Union and its member States will continue to show commitment in these areas, which are important to our security and our prosperity.

The European Union commends the members and the Chair of the Working Group on the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space for their excellent work and the tangible progress achieved. In June 2016, the Committee broadly agreed to move ahead with a first set of guidelines while requesting the Working Group to continue to consider the remaining guidelines. Further progress was made at the intersessional meeting of the Working Group in September 2016. The European Union and its member States welcome these positive developments and will continue to fully support the process.

[12] The draft international code of conduct for outer space activities is available from: https://eeas.europa.eu/sites/eeas/files/space_code_conduct_draft_vers_31-march-2014_en.pdf.